IPC Series

IPC-DT/L400(PC)A,
IPC-DT/L400(PC)TA,
IPC-DT/L400(PC)TB
User's Manual

CONTEC CO.,LTD.

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1. Introduction

The display is a 12.1inch, desktop TFT LCD for use with a host computer, such products as the CONTEC IPC series and SBC (single-board computer). The display is available in three different models; the IPC-DT/L400(PC)A not installed with the touch-panel feature, the IPC-DT/L400(PC)TA installed with the touch-panel feature, and the IPC-DT/L400(PC)TB with a polarizer attached to the (low-reflection and high-contrast) touch panel.

- Large 800 x 600 dot display screen (12.1inch) that is optimum for use with Windows.
- Wide-viewing angle and high-brilliance type
- Displays a maximum of 262,144 colors
- Equipped with a quick-response, analog touch panel [IPC-DT/L400(PC)TA, IPC-DT/L400(PC)TB]
- Digital RGB I/F
- A variety of host computers
  This display works with the following host computers:

For connectivity information for other products than IPCs and SBCs described here, see the CONTEC's Product Catalog or visit the CONTEC's Web site or contact your retailer.

- IPC series
  - IPC-BX/M560(PCW)E
  - IPC-BX/M560(PCW)C
  - IPC-BX/M560(PCW)EP
  - IPC-BX/M560(PCW)CP
  - IPC-BX/M400(PC)H
  - IPC-BX/P400(PC)
  - IPC-UP/M500(PCW)H
  - IPC-UP/M500(PCW)
  - PC-LCD(PCI)T
- SBC (single-board computer) series
  - PC-686E(PC)-266
  - PC-686E(PC)-333
  - PC-586HU(PC)-LV
  - PC-486HU(PC)-LV

* To use this display with the SBC series, you need the "ADPLCD(PC)H" ISA expansion board.

- Various options are available:
  - IPC-M4CL-2H : Cable for connecting the flat-panel display installed with no touch-panel feature (2m) For the "IPC-BX/M400(PC)H"
  - IPC-M4CL-2TH : Cable for connecting the flat-panel display installed with the touch-panel feature (2m) For the "IPC-BX/M400(PC)H"
  - IPC-P4CL-2H : Flat panel display connection cable (2m)
  - ADPLCD(PC)H : ISA expansion board to allow display with the SBC (single-board computer).
  - IPC-TPB1-DRV : Touch panel driver for the "IPC-BX/M400(PC)H" and other models
  - IPC-TPB2-DRV : Touch panel driver for the "IPC-BX/M560(PCW)" series and "SBC"
  - IPC-SND-02 : Stand kit for using the main unit as a desktop machine
  - IPC-CV12 : Protective sheet for 12.1inch screen

  * For more information about each host computer and option, see the "Product Guide" or contact a CONTEC branch or a sales representative.

Limited One-Year Warranty

CONTEC Interface boards are warranted by CONTEC CO., LTD. to be free from defects in material and workmanship for up to one year from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office, from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original boards. The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization Number (RMA) from the CONTEC group office where you purchased before returning any product.

*** No product will be accepted by CONTEC group without the RMA number.**

Liability

The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Handling Precautions

In order to enjoy your FLAT PANEL DISPLAY for a long time, please be sure to read the following precautions before using the display.

- This display is made of the precise electric parts, so do not use or store it in the vicinity of impulse or vibration.
- This product is not intended for use in aerospace, space, nuclear power, medical equipment, or other applications that require a very high level of reliability. Do not use the product in such applications.
- If you utilize this product in such usages where high reliability and safety are required as on the trains, vessels, automotives or crime- or disaster-prevention devices, contact your retailer.
- Do not use or store the product in a location exposed to extremely high or low temperature or susceptible to rapid temperature changes.
  Example: - Exposure to direct sun
  - In the vicinity of a heat source
- Do not use the product in extremely humid or dusty locations.
- Display brightness deteriorates with use. Backlight life (50% of initial brightness) is 50,000 hours (at continuous operation at 25°C).
- Do not use sharp objects, such as a pencil tip, to operate the touch panel. Doing so may damage the panel and cause a malfunction.
- Protect the touch panel from being shaken or struck as this may cause damage.
- If the touch panel surface or frame becomes dirty, wipe them clean with a neutral detergent. Do not wipe them with thinner, ammonia, or strong chloride solvent. In addition, when using the touch panel in an environment where the touch panel can easily become dirty, place use a protective sheet (option).
- Absolutely do not disconnect the display cable while the host computer power is turned on. Only plug in or disconnect the cable after turning off the host computer power or damage could result.
- This monitor does not support MS-DOS. Another CONTEC product PC-LCD(PCI)T supports neither MS-DOS nor Windows 3.1.
- The display cable connector has a rotating construction, but it was not designed to be frequently rotated. Do not rotate it frequently or damage could result.

- As one of analog, touch-panel characteristics, detection positions might slide out of place due to an ambient change (in temperature and/or humidity) or as time elapses. If you experience this, recalibrate the touch panel and re-set calibration data.
- If you utilize this product in such usages where high reliability and safety are required as on the trains, vessels, automotives or crime- or disaster-prevention devices, contact your retailer.

2. Specifications

Function Specifications

Table 2.1. Function Specifications

Item	IPC-DT/L400(PC)A	IPC-DT/L400(PC)TA	IPC-DT/L400(PC)TB
Installation type	Desktop, wall hanging *1		
Display size	12.1 inch		
Dot configuration	800 dots horizontal x 600 dots vertical		
Display device	TFT color liquid crystal display		
Display colors	262,144 colors		
Brightness control	Adjustable with the volume on the side		
Backlight control	Possible (software controlled)		
Cable length	2m (use the special-purpose display cable sold separately.)		
Touch panel			
Resolution	-	1024 x 1024 (emulated at 800 x 600)	
Detection method	-	Resistance film analog method	
Strong life	-	More than a million times	
		(Load: 300gf±100gf, Speed: 2 times/sec, by mechanical keying in)	
Touch panel interface	-	50-core, half-pitch connector on the back (shared with display signals)	
Polarizer *2	-	No	Yes
Power consumption	+5VDC 2.7A (Max.)		

*1 When using on the Desktop, the optional stand IPC-SND-02 is required

*2 The IPC-DT/L400(PC)TB with a touch-panel installed with a polarizer offers low reflection and high contrast.
(Note that brightness is reduced by 9% compared with the touch panel not installed with the polarizer.)

General Specifications

Table 2.2. General Specifications

Item			Specification
Environment			
	Ambient operating temperature		0 - 45°C
	Ambient storage temperature		-10 - 60°C
	Ambient humidity		20% - 90% RH
	Floating dust		Not severe
	Corrosive gas		none
	Noise resistance	Line noise	Signal line /1kV(IEC1000-4-4 Level3, EN61000-4-4 Level3) (When using the host PC IPC-BX/M400(PC)H)
		Statistic electricity resistance	Contact / 4kV (IEC1000-4-2 Level2, EN61000-4-2 Level2) Airborne / 8kV(IEC1000-4-2 Level3, EN61000-4-2 Level3)
Structure			
	Major dimensions (mm)		320(W) x 35(D) x 272(H)
	Weight		About 1.6kg

Display Optical Specifications

Table 2.3. Display Optical Specifications

Item	Condition			Min.	Standard
Visual angle (vertical)	CR≥10	ϕ = 180°	Display in monochrome	30deg	50deg
		ϕ = 0°		40deg	70deg
Visual angle (horizontal)		ϕ = +90°		40deg	70deg
		ϕ= -90°		40deg	70deg
Surface brightness (at center)	Display in white			280cd/m^2	350cd/m^2

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness at screen center with white displayed}}{\text{Brightness at screen center with black displayed}}$$

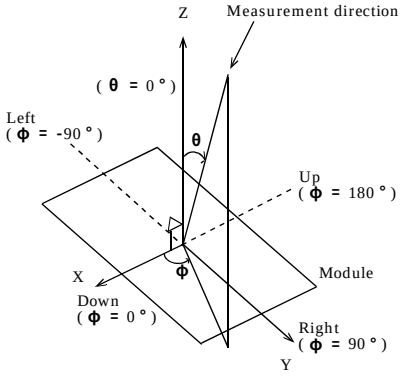


Figure 2.1. Definition of viewable area

Note!

Optical specification data represent optical characteristics of the LCD installed on the device, which are different from the actual view or view angles.

3. Dimensions and Names of Parts

Case External Dimensions

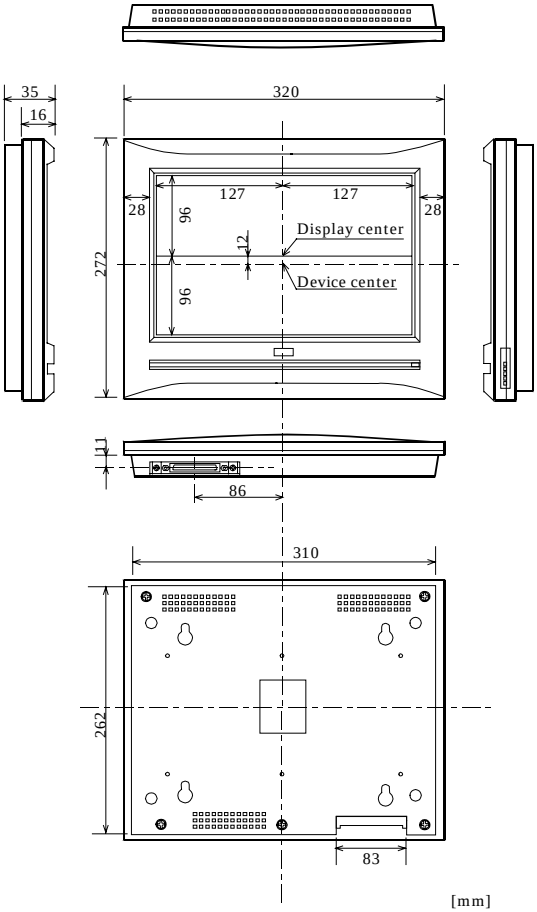


Figure 3.1. Case External Dimensions

Part Names

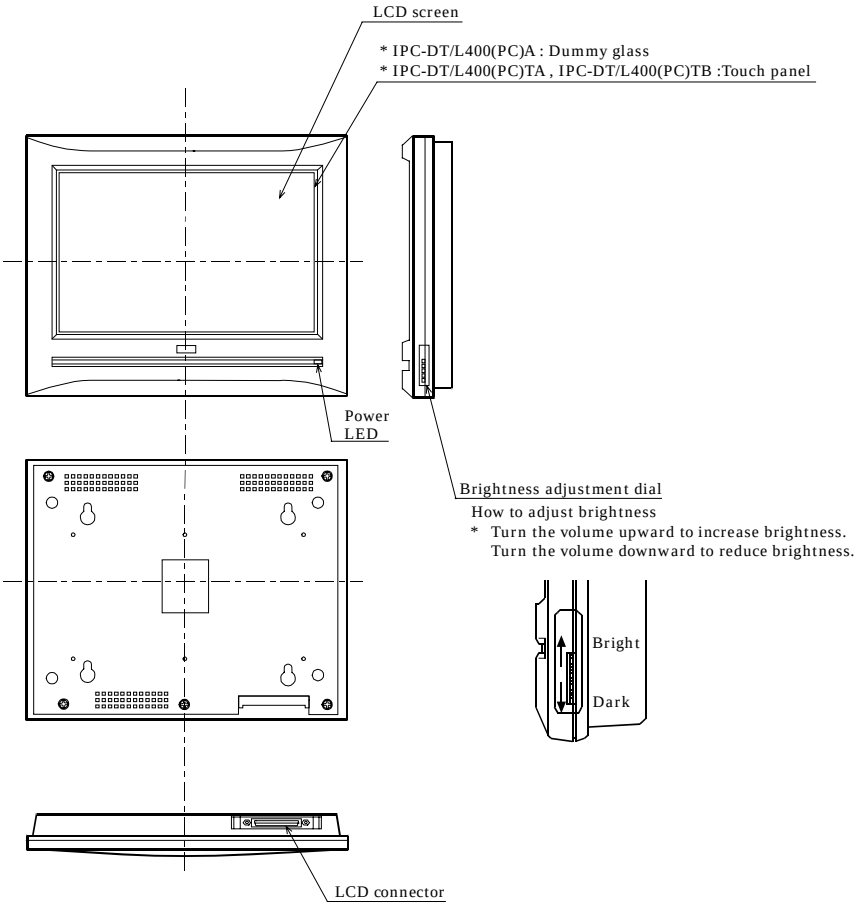


Figure 3.2. Part Names

4. Installation

There are two methods of installation. Both are described below.

(1) Hanging with screws
Install M4 size round head or binding screws at the 4 wall locations shown by the following dimensions. The panel can be hung more securely on screws with larger head diameters.

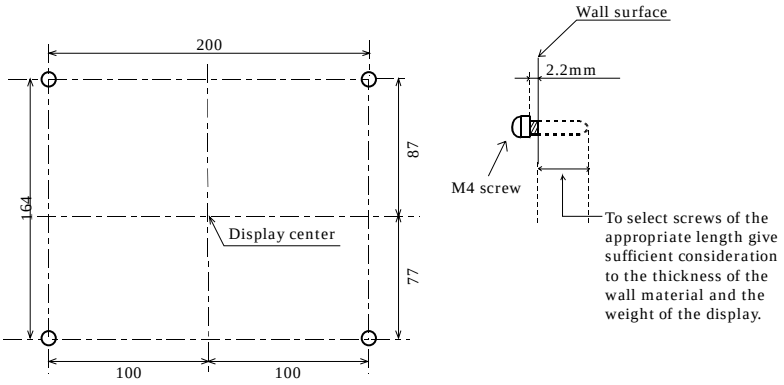


Figure 4.1. Screw Installation Locations

Hang the display by the 4 installation holes on the corresponding screws.

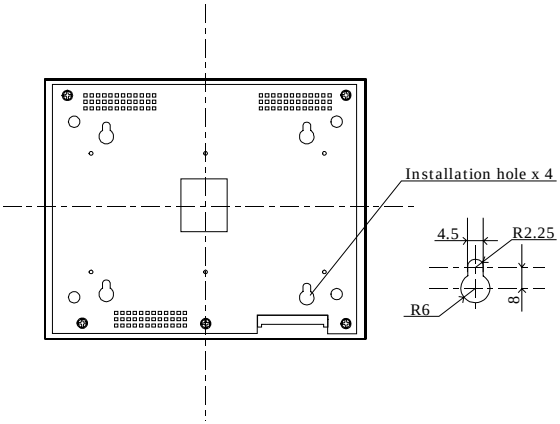


Figure 4.2. Installation Holes

(2) Fastening the back of the panel with screws.
Make 4mm holes in the 6 locations on the back of panel shown by the dimensions below.

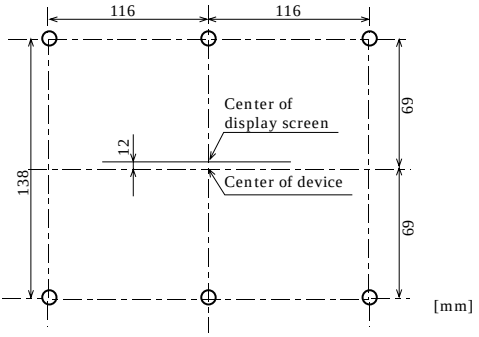


Figure 4.3. Hole Locations

Fasten the display by the 6 installation holes using M3 screws.
Note that the maximum depth of the display screw holes is 4mm.

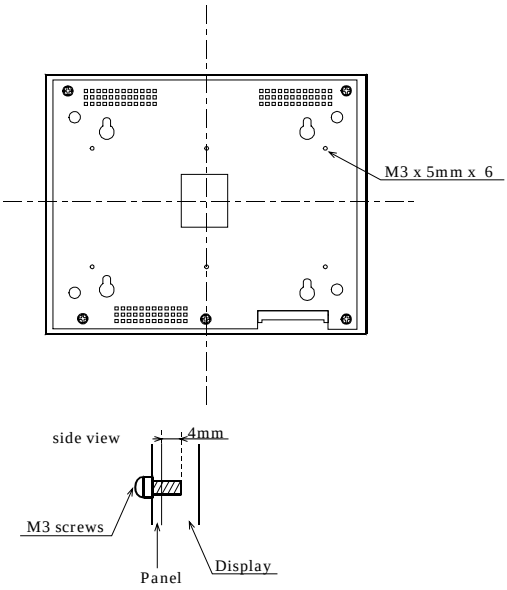


Figure 4.4. Installation Holes

Installation Cautions

(1) Dimension restriction when mounting in a recessed wall location

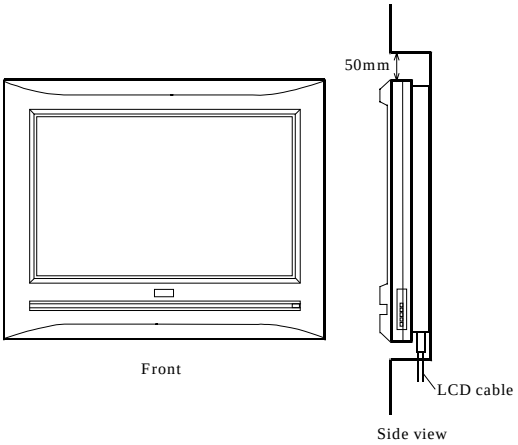


Figure 4.5. Mounting in a Recessed Wall Location

(2) Bending limit for LCD cable

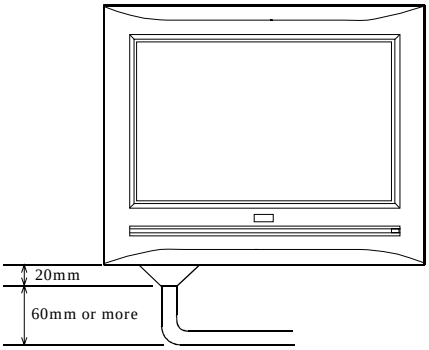


Figure 4.6. Bending Limit for LCD Cable

5. Connecting with Host Computer

VGA Mode Setting

Before using the display, set the VGA mode setting on the host computer to "TFT color 800 x 600." For each host computer, set as described next.

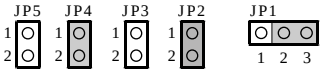
If using IPC or SBC products other than those listed here, refer to their respective manuals for details of the settings.

Notes!

- *Before setting, be sure to disconnect the power to the host computer.*
- *Set according to the documentation that came with the host computer.*
  (If settings for this display are not included in the host computer documentation, set according to this manual.)

(1) When you are using the IPC-BX/M400(PC)H or IPC-BX/P400(PC):
On the BIOS "Embedded Features" setup screen, set "VGA BIOS Select" to "800 x 600TFT." For more information about setting, see the IPC-BX/M400(PC)H documentation.

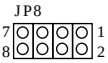
(2) When you are using the IPC-UP/M500(PCW)H or IPC-UP/M500(PCW):
Set the jumpers on the UPLCDS board of the device to TFT color 800 x 600 as shown next.



JP1 : 2-3Short
JP2 : Short
JP3 : Open
JP4 : Short
JP5 : Open

(3) When you are using the IPC-BX/M560E(PCW)E, IPC-BX/M560E(PCW)C, IPC-BX/M560E(PCW)EP, IPC-BX/M560(PCW)CP, PC-LCD(PCI)T, PC-686E(PC)-266 or PC-686E(PC)-333, set the rotary switches inside the display and on the circuit board to the "0 setting" (TFT color 800 x 600).

(4) When you are using the PC-586HU(PC)-LV:
Set the jumpers on the circuit board to TFT color 800 x 600 as shown next:



JP8 : Open

(5) When you are using the PC-486HU(PC)-LV:
Set the jumpers on the circuit board to TFT color 800 x 600 as shown next:

JP9 : Open

System Configuration and Connection

Connect this display to each host computer using the LCD connector on the host computer and a dedicated cable. The following diagram shows an example connection with the IPC-BX/M400(PC)H:

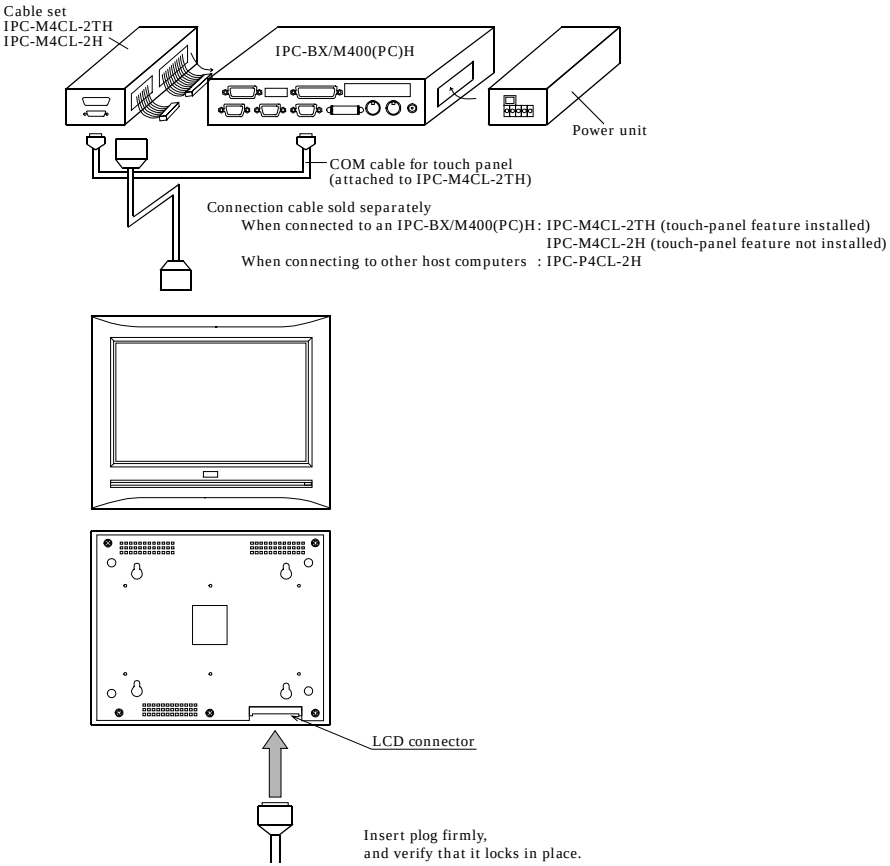


Figure 5.1. System Configuration (When connected to an IPC-BX/M400(PC)H)

Note!

Before connecting, be sure to disconnect the power to the host computer.

6. Touch Panel

The IPC-DT/L400(PC)TA and IPC-DT/L400(PC)TB installed with touch-panel features are equipped with a quick-response touch panel to allow keyboard- and mouse-less operations and performs serial communications (RS-232C) with the host computer.

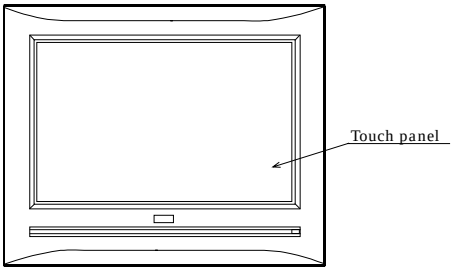


Figure 6.1. Touch Panel

To use the touch panel, install the touch-panel driver software (IPC-TPB1-DRV, IPC-TPB2-DRV). This product is offered as an option and you need to purchase it separately.

Host PC	Compatible touch-panel driver software modes
IPC-BX/M400(PC)H, IPC-BX/P400(PC) IPC-UP/M500(PCW)H, IPC-UP/M500(PCW) PC-LCD(PCI)T	IPC-TPB1-DRV
IPC-BX/M560(PCW)E, IPC-BX/M560(PCW)C IPC-BX/M560(PCW)EP, IPC-BX/M560(PCW)CP	IPC-TPB2-DRV (Windows 98/95/NT 4.0 only)

For more information about touch-panel drivers, contact a CONTEC branch or a sales representative.

Notes!

- *Brightness on this device is not adjustable with the touch-panel driver software utility. Adjust brightness using the brightness controller on one side of the device.*
- *The DOS and Windows' DOS 640 x 480 screen mode during the full screen mode is not supported.*

IPC-DT/L400(PC)A
IPC-DT/L400(PC)TA
IPC-DT/L400(PC)TB

User's Manual

IPC-DT/L400A-HMU

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March 2005 Edition

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[03072000] Management No. A-46-371

[03042005_rev2] Parts No. LZQ2461